

# Your Taxes, Game Theory and the Shutdown

By David Flemming

June 12, 2018

Will your taxes increase or won't they? As EAI has written on [previously](#), there aren't any mainstream proposals from the Governor or Legislature that would ensure Vermonters healthy tax rates for years to come. But if we are discussing only 2019, Governor Scott's proposal is more affordable. By using Game Theory, we can predict that any compromise will fall in line more with what Governor Phil Scott wants and less with what Democratic Leadership has proposed, helping Vermont avoid a government shutdown. Scott has the self-interest and the leverage to stand firm for stable taxes.

What is game theory? Game theory is a tool used to [analyze](#) rational choice by taking into account the choices an individual expects others to make. In life, when we make decisions that involve other "players," we cannot take into consideration every relevant detail, so we must identify the most pertinent details and omit the others. First, we assume that the individuals "players" in the game are not looking to take other players down a peg. Second, we assume each player is seeking the best outcomes for themselves and are indifferent to the outcomes of others. Third, all players have complete knowledge of the situation. If there are 4 "Outcomes," each player understands exactly what they are, and what the other players would gain from each. Finally, since turn-based games add complexity, it is easiest to demonstrate the usefulness of game theory with a simultaneous game. Both Scott and Legislative Leadership only see the choice the other has made after their own choice has been made.

In reality, there are thousands of individual choices Scott and Leadership will have to make in the coming weeks of negotiation. For our purposes, each will only have to make one choice. Whether to "Raise (Property) Taxes" in 2019 or to have "Stable Taxes." Scott and Leadership's past choices have laid the foundation for this current political "game."

Scott (represented in Blue) has made his position known: he wants "Stable Taxes," and has promised to veto any legislative proposal to "Raise Taxes." Therefore, in this model of the game, the Stable Taxes option will be Scott's "Stay" choice, while his potential to "Raise Taxes" will be his "Concede" choice.

Step 1: Drawing the Matrix		
	Legislative Leadership	
Governor Scott	Concede: Stable Taxes	Stay: Raise Taxes
Concede: Raise Taxes	1st Outcome	2nd Outcome
Stay: Stable Taxes	3rd Outcome	4th Outcome: Gov't Shutdown

Senate President Tim Ashe and Speaker of the House Mitzi Johnson represent Legislative Leadership and the Democratic majority in Vermont's legislature. They recently maneuvered a property tax hike against Scott's wishes. Therefore, Leadership's (represented in Green) "Raise Taxes" will be Leadership's "Stay"

choice, while Leadership’s “Stable Taxes” will be their “Concede” choice. As we construct our “Matrix” in “Step 1,” giving us 4 “Outcomes.” Off the bat, we know that if both players “Stay” (4<sup>th</sup> Outcome), we will get a Government Shutdown (Red).

Now, on to assigning “Payoffs” for each outcome. For each of the 4 outcomes, there are 2 “Payoffs,” 1 for Scott (a blue #) and 1 for Leadership (a green #). Payoffs represent the Vermont voters who will vote for/against legislative Democrats or for/against Scott.

For Governor Scott (“Step 2” diagram), the 1<sup>st</sup> and 2<sup>nd</sup> Outcomes where he “Concedes” will have a lower payoff than the 3<sup>rd</sup> and 4<sup>th</sup> outcomes, where he “Stays” for stable taxes. In the real world, a “stay” move means a veto of a tax increase. The 1<sup>st</sup> outcome in which Scott and Leadership both “Concede” would be slightly better than the 2<sup>nd</sup> Outcome where only Scott concedes and gets nothing in return. Therefore, we will give Scott a negative payoff for the 1<sup>st</sup> and 2<sup>nd</sup> Outcomes (“-6” and “-8” payoffs) because he would have failed to deliver on his campaign promise to stop rising taxes

Step 2: Scott's Payoffs		
	Legislative Leadership	
Governor Scott	Concede: Stable Taxes	Stay: Raise Taxes
Concede: Raise Taxes	-4, - 1st Outcome	-8, - 2nd Outcome
Stay: Stable Taxes	+8, - 3rd Outcome	0, - 4th Outcome

The 3<sup>rd</sup> outcome where Scott “Stays” for Stable Taxes and the Legislature Concedes is Scott’s best possible Outcome. Though, the 4<sup>th</sup> Outcome, in which both Leadership and Scott “Stay,” resulting in a government shutdown, isn’t all that much worse for him. Scott can ‘spin’ a shutdown and tell Vermont voters that their Leadership didn’t want to stabilize their property taxes. While voters might not be happy about a shutdown, they are more likely to blame Leadership than Scott. Therefore, the 4<sup>th</sup> Outcome has a “0” payoff for Scott, indicating he didn’t significantly increase or decrease his chances of getting elected governor again. The 3<sup>rd</sup> Outcome, in which Scott’s promise of “Stable Taxes” triumphs over Leadership’s plan for Raising Taxes, gives him a “+8” payoff.

On to Legislative Leadership’s payoffs (“Step 3” diagram). We assume that Ashe and Johnson are not able to get the legislative votes required to override a Scott veto because there are enough Republicans in the House to block a veto override. The 1<sup>st</sup> and 3<sup>rd</sup> Outcomes in which Leadership concedes to Scott’s plan for “Stable Taxes” will have lower payoffs than the 2<sup>nd</sup> Outcome where they “Stay” for Raising Taxes. The 2<sup>nd</sup> Outcome is the only one in which Leadership has a positive

Step 3: Leadership's Payoffs		
	Legislative Leadership	
Governor Scott	Concede: Stable Taxes	Stay: Raise Taxes
Concede: Raise Taxes	-4, -2 1st Outcome	-8, +8 2nd Outcome
Stay: Stable Taxes	+8, -2 3rd Outcome	0, -8 4th Outcome

payoff. If Leadership can “Stay” for higher taxes and Scott concedes, this is the best possible scenario for Leadership, giving them a payoff of “+8” for the 2<sup>nd</sup> Outcome, and proving that Scott must bend to their will.

Finally, “Step 4.” While voters might be willing to give Scott the benefit of the doubt in a government shutdown because Scott was standing for lower taxes, they would probably not do so for a Legislative Leadership that wanted to pay down the pension fund, a scenario that would do nothing for stabilizing taxes in the short term. For this reason, conceding to Scott’s plan for higher taxes (3<sup>rd</sup> Outcome, payoff= -2), gives Leadership a ‘less-negative’ payoff than “staying” than for a tax increase and a government shutdown (4<sup>th</sup>

Step 4: "Solving"		
	Legislative Leadership	
Governor Scott	Concede: Stable Taxes	Stay: Raise Taxes
Concede: Raise Taxes	-4, -2 1st Outcome	-8, +8 2nd Outcome
Stay: Stable Taxes	+8, -2 3rd Outcome	0, -8 4th Outcome

outcome, payoff= -8). If Scott makes Democrats accept “Stable Taxes,” the blame can be diluted across the legislature and have little effect on the election in November.

Regardless of what Leadership chooses, Scott will always choose to “Stay” for “Stable Taxes, meaning Leadership will never to able to pick from the 1<sup>st</sup> or 2<sup>nd</sup> Outcomes. These outcomes are ‘greyed’ out in “Step 4”. Leadership must choose either the 3<sup>rd</sup> or 4<sup>th</sup> outcomes. In order to avoid a government shutdown (4<sup>th</sup> outcome, payoff=-8), a rational Leadership will choose the 3<sup>rd</sup> Outcome, with a payoff of -2. This makes it the Leadership’s best interest to choose the best political outcomes for Scott, the 3<sup>rd</sup> outcome, giving Scott a +8 payoff and Leadership a -2 payoff. In game theory, Scott’s self-interest to make the same move every time regardless of what the other player does is called a “Dominant Strategy.” While having a Dominant Strategy may sometimes mean choosing from two bad alternatives, Scott’s dominant strategy gives him the clear advantage here.

You may have been able to guess the outcome of this game without using this process. But what happens when you add in hundreds of players in dozens of interdependent “games” going on simultaneously in Montpelier? Mastering game theory can reduce your tax uncertainty by helping you to predict the outcomes of political games like this.

*David Flemming is a policy analyst at the Ethan Allen Institute*